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Claims

1. An anti-annexin antibody or fragment thereof, wherein the antibody or fragment is capable of specifically binding to an annexin present on a cell that is undergoing apoptosis.
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2. The antibody fragment according to claim 1 wherein it is a Fab or F(ab')₂ fragment.
- 10 3. The antibody or fragment according to any one of the preceding claims, wherein it is a monoclonal antibody or fragment thereof.
4. The antibody or fragment according to any one of the preceding claims, wherein it is labeled.
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5. The antibody or fragment according to claim 4, wherein the label is an effector molecule, a toxic substance or a radioactive substance.
- 20 6. A pharmaceutical composition, comprising as the active ingredient an antibody or fragment thereof capable of specifically binding to an annexin present on a cell that is undergoing apoptosis .
7. Use of an anti-annexin antibody or fragment thereof for the detection and/or monitoring of apoptosis, *in vitro*, *ex vivo* or *in vivo*.
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8. Use of an anti-annexin antibody or fragment thereof for modulating an immune response.
9. Use of an anti-annexin antibody or fragment thereof for inducing and/or increasing an inflammatory response.
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10. Use of an anti-annexin antibody or fragment thereof for targeting tumor cells and/or tumor tissue.
- 5 11. Use of an anti-annexin antibody or fragment thereof for inducing an inflammatory response to tumor cells.
12. Use of an anti-annexin antibody or fragment thereof for blocking the development of tolerance against tumor cells.
- 10 13. Use of an anti-annexin antibody or fragment thereof for the production of an agent for the diagnosis and/or treatment of diseases linked to apoptosis.
- 15 14. Use of claim 13, wherein the diseases linked to apoptosis are selected from the group consisting of cancer, diabetes, autoimmune diseases and cardiovascular and vascular diseases.
- 20 15. Use of claim 14, wherein the autoimmune disease is diabetes, rheumatoid arthritis, lupus erythematosus or multiple sclerosis.
- 25 16. Use of any one of claims 7 to 15, wherein the anti-annexin antibody is labelled.
17. Use of claim 16, wherein a labelled anti-annexin antibody is used for the production of a diagnostic agent for the detection of tumor cells after or during conventional cancer therapy.
- 30 18. Use according to anyone of claims 1-17, wherein the anti-annexin antibody is specific for annexin I, annexin II, annexin IV, or annexin V.
19. A method for detecting and/or monitoring apoptosis comprising:

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- (i) providing a sample to be analysed, comprising cells;
- (ii) detecting an annexin present on the surface of said cells by adding a substance capable of specifically binding to an annexin present on a cell that is undergoing apoptosis.

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20. The method of claim 19, wherein the substance of step (ii) is an antibody or fragment thereof capable of specifically binding to an annexin present on a cell that is undergoing apoptosis.

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21. Use of an annexin and/or functional fragments thereof and/or fusion protein comprising an annexin or functional fragments thereof, for the production of an agent for inhibiting an inflammatory response.

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22. Use of an annexin and/or functional fragments thereof and/or fusion protein comprising an annexin or functional fragments thereof, for the production of an agent for the diagnosis and/or the treatment of a disease linked with apoptosis and/or cell death and/or inflammation.

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23. Use according to claim 22, wherein the disease is selected from the group consisting of a ischaemic reperfusion damage, stroke, chronic heart failure, myocardial infarction, spinal cord injury, acute liver failure, renal ischaemia, neurodegenerative diseases such as Alzheimer, Parkinson's disease, sepsis, HIV-infection and autoimmune diseases, in particular multiple sclerosis.

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24. Use of an annexin and/or functional fragments thereof and/or fusion protein comprising an annexin or functional fragments thereof, for the production of an agent to inhibit an inflammatory response to tissue, in particular transplantation tissue.

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25. Use according to anyone of claims 21-24, wherein the annexin used is annexin I, annexin II, annexin IV or annexin V.